Feeding behaviour and animal welfare

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Animal welfare

- Biological functioning
- Affective states
- Natural living

Fraser et al. 1997
Preference for pasture?

Cows prefer pasture at night, and indoors during the day:

Motivation for pasture?
Effects of social rearing on cognition

Initial Discrimination

Positive approach for milk reward

Negative do not approach; time-out

Meagher et al. 2015 PLoS ONE10: e0132828
Discrimination learning

Correct no-go response vs. Number of sessions

Social Housing

Individual Housing

Meagher et al. 2015 PLoS ONE10: e0132828
Initial Discrimination

Positive approach for milk reward

Negative do not approach; time-out

Reversal

Positive approach for milk reward

Negative do not approach; time-out

Effects of social rearing on cognition

Meagher et al. 2015 PLoS ONE 10: e0132828
Reversal learning

Correct no-go response vs. Number of sessions

Meagher et al. 2015 PLoS ONE10: e0132828
Reversal learning

Meagher et al. 2015 PLoS ONE10: e0132828
Food neophobia test

- 70 d of age
- Presented 2 kg of novel food (chopped carrots or hay):
- Test lasted 30 min and repeated 3 times per calf

Costa et al. 2015. J. Dairy Sci. 97:7804–7810
Food neophobia test

Costa et al. 2015. J. Dairy Sci. 97:7804–7810
Food neophobia test

Costa et al. 2015. J. Dairy Sci. 97:7804–7810
A new model for animal welfare?

Grazing the bunk – truth seeking?

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TMR-L</th>
<th>TMR-H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>--Kg DM per heifer (% of total DM)--</td>
<td></td>
</tr>
<tr>
<td>Fescue Hay</td>
<td>3.4 (68)</td>
<td>3.4 (42)</td>
</tr>
<tr>
<td>Corn Silage</td>
<td>1.1 (22)</td>
<td>1.1 (13)</td>
</tr>
<tr>
<td>Grass Silage</td>
<td>0.5 (10)</td>
<td>0.5 (6)</td>
</tr>
<tr>
<td>Grain Mix</td>
<td>0.0 (0)</td>
<td>3.2 (39)</td>
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Training (non-uniform) [ ]

Grazing the bunk – truth seeking?

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<td>0.5 (10)</td>
<td>0.5 (8)</td>
<td>0.5 (6)</td>
</tr>
<tr>
<td>Grain Mix</td>
<td>0 (0)</td>
<td>1.6 (24)</td>
<td>3.2 (39)</td>
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Grazing the bunk – truth seeking?

Sorting mixed feed – control seeking?

- Sorting of TMR
- With and without access to calf starter

Costa et al. in review
• Comparison of offered TMR with orts following a 24-hour feeding period

Costa et al. in review
Intake (% of predicted intake)

- Long (19 mm)
- Medium (8 mm)
- Short (1.18 mm)
- Fine (pan)

Costa et al. *in review*
Intake (% of predicted intake)

Long (19 mm)  Medium (8 mm)  Short (1.18 mm)  Fine (pan)

Costa et al. *in review*
Priorities for new research:

• Understanding the bi-directional relationship between health and feeding

• Understanding the effects of naturalistic environments on affective states and development

• Understanding ‘control’ and ‘truth’ seeking components of animal welfare